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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/825,132	04/02/2001	Jon David England	51215 (GCSD1085)	1554

7590 08/13/2004

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EXAMINER

AHN, SAM K

ART UNIT	PAPER NUMBER
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2637

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/825,132	Applicant(s) ENGLAND, JON DAVID	
	Examiner Sam K. Ahn	Art Unit 2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11 and 13-19 is/are rejected.
- 7) ☒ Claim(s) 9, 10 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figures 1 and 3-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 1-19 are objected to because of the following informalities:

In claims 1,3,8 and 9, lines 10 and 16, 7-8, 10 and 7-8, respectively, recite "signal processor" or "baseband signal processor" which appears to be referring to the bit synchronizer (90 in Fig.5). The specification does not describe the element as such, and therefore suggests reciting the element as a "bit synchronizer".

In claim 1, line 7, delete "said antennas" and insert "antennas".

In claim 1, line 14, delete "said carrier demodulators" and insert "said plurality of carrier demodulators".

In claim 2, line 2, delete "said antennas comprise" and insert "said plurality of antennas comprises".

In claim 3, line 2, delete "a respective" and insert "each of said plurality of".

In claims 3 and 5, lines 2, respectively, delete "demodulator" and insert "demodulators".

In claim 3, lines 4-5, delete "a respective downconverted antenna output signal" and insert "said downconverted signal from each of said plurality of antennas".

In claim 4, line 2, delete "said carrier" and insert "said plurality of carrier".

In claim 5, line 2, delete "a respective" and insert "each of said plurality of".

In claim 7, line 2, delete "loop" and insert "loops".

In claim 7, lines 2-3, delete "said respective carrier demodulator" and insert "said plurality of carrier demodulators".

In claim 8, line 7, delete "process signals" and insert "processing said signals".

In claims 8-12, lines 8,4,6,5 and 6, respectively recite "antenna or plurality of antennas". Please amend accordingly to avoid no antecedent basis, since the preamble in claim 8 recites "a plurality of generally panel-configured phase array antennas".

In claim 8, line 14, delete "said carrier" and insert "said plurality of carrier".

In claim 9, lines 4-5, delete "a respective downconverted antenna output signal" and insert "said downconverted signal from each of said plurality of antennas".

In claim 10, line 3, delete "prime" and insert "prime number".

In claim 13, line 15, delete "carrier" and insert "said carrier".

In claim 15, lines 3-4, delete "a respective downconverted antenna output signal" and insert "said downconverted signal from each of said plurality of antennas".

In claim 15, line 6, delete " a soft" and insert "soft".

In claim 15, line 7, delete "signal" and insert "signals".

In claim 15, line 7, delete "soft" and insert "said soft".

In claim 15, line 11, delete "baseband" and insert "said baseband".

In claim 19, line 3, delete "loop of said respective carrier demodulator" and insert "loops of said plurality of carrier demodulators".

Claims 6,14,16-18 directly or indirectly depend on claim 1,8 or 13.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 3,4,6,7 and 11-19 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
 - a. Claims 3 and 9 recites the limitation "the resulting carrier-demodulated signal" in line 6, respectively. There is insufficient antecedent basis for this limitation in the claim.
 - b. In claims 6 and 11 lines 3-4, 5, respectively, recite "the antenna". It is unclear and indefinite as to which antenna among the plurality of antennas it is referring to.

- c. Claim 9 recites the limitation "the resulting carrier-demodulated signal" in line 6.
There is insufficient antecedent basis for this limitation in the claim.
- d. Claim 12, line 2, recites "the operation of the carrier recovery loop of said respective carrier demodulator" is indefinite as the carrier recovery loop (79) is a separate element from the carrier demodulators. (as shown in Fig.6)
- e. In claim 13, line 1, recites "a signal" while claims 17 and 19, lines 4 and 5, respectively, also recites "a signal". It appears that it is a common signal. Is this correct?
- f. Claim 13 recites the limitation "said signal incident" in lines 4 and 8. There is insufficient antecedent basis for this limitation in the claim.
- g. Claims 4,7, and 14-19 directly or indirectly depend on claim 3 or 13.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

- 4. Claims 1,2,5,6,8,13,14,17 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Keskitalo et al. (Keskitalo).

Regarding claims 1,8 and 13, Keskitalo discloses a method of deriving information from a signal and an antenna system and a signal processing system (see Fig.5) comprising, a plurality of antennas (500) having a prescribed multidimensional spatial relationship with respect to one another (note col.9, line 40 – col.10, line 3). Keskitalo further discloses (see Fig.6) a plurality of carrier demodulators (620,628) respectively coupled to receive downconverted signals representative of outputs of said plurality of antennas, and being operative to output baseband, carrier-demodulated signals. (note col.12, lines 33-43) A signal processor (608,610,612) processes a combination of said baseband, carrier-demodulated signals to derive baseband information signals (parameters) contained therein (note col.10, lines 31-46, col.12, lines 1-62), wherein the operation of said plurality of carrier demodulators is controlled in accordance with said baseband information signals derived by said signal processor (where the parameters are provided to the receiver units including the demodulators in regards to the angle of arrival and delay of the incoming signal).

Regarding claims 2 and 14, Keskitalo teaches all subject matter claimed, as applied to claim 1 or 13. Keskitalo further teaches wherein said plurality of antennas comprise spaced apart, phased array antenna panels. (note col.9, line 40 – col.10, line 3)

Regarding claims 5 and 17, Keskitalo teaches all subject matter claimed, as applied to claim 1 or 13. Keskitalo further teaches wherein each of said plurality of carrier demodulator is configured to weight baseband, carrier-demodulate signals in accordance with a weighting control signal representative of prescribed signal-to-noise ratio information associated with a signal incident upon said plurality of antennas. (note col.13, lines 35-49)

Regarding claims 6 and 18, Keskitalo teaches all subject matter claimed, as applied to claim 5 or 17. Keskitalo further teaches wherein said weighting control signal is derived in accordance with the angle of incidence of said signal upon the antenna whose downconverted output is coupled to said respective carrier demodulator. (note col.12, lines 16-62 and col.13, lines 8-49)

Allowable Subject Matter

5. Claims 3,4,7,9,11,12,15,16 and19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and overcome the 112, 2nd paragraph rejection and claim objections.
6. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and overcome the claim objections.

7. The following is a statement of reasons for the indication of allowable subject matter:

Present application discloses a receiver comprising a plurality of phased array antennas wherein the receiver further comprises plurality of demodulators. The outputs of each demodulators are combined and information derived from the combined signals is used to effectively receive the incoming signal. Closest prior art, Keskitalo teaches, in the same field of endeavor, comprising all the limitation claimed. However, Keskitalo does not teach or suggest in combination of all the elements in combination of producing a reference signal in each of the demodulators, implementing a filter to further convert demodulated signals into soft decision signals and further combine the soft decision signals.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chiba et al. teach plurality of antennas wherein the combined signals from the output of the antennas are combined and computes the amplitude and phase of the received signal.

Dent teaches antenna comprising plurality of antenna elements with different beamwidth.

Strich et al. teach a receiver comprising plurality of antennas and receiving signals coded by a pseudo random coding.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Sam Ahn** whose telephone number is **(703) 305-0754**.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Jay Patel**, can be reached at **(703) 308-7728**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

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Alexandria, VA 22313-1450

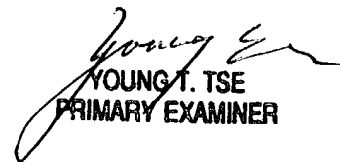
or faxed to:

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Sam K. Ahn
8/5/04


YOUNG T. TSE
PRIMARY EXAMINER